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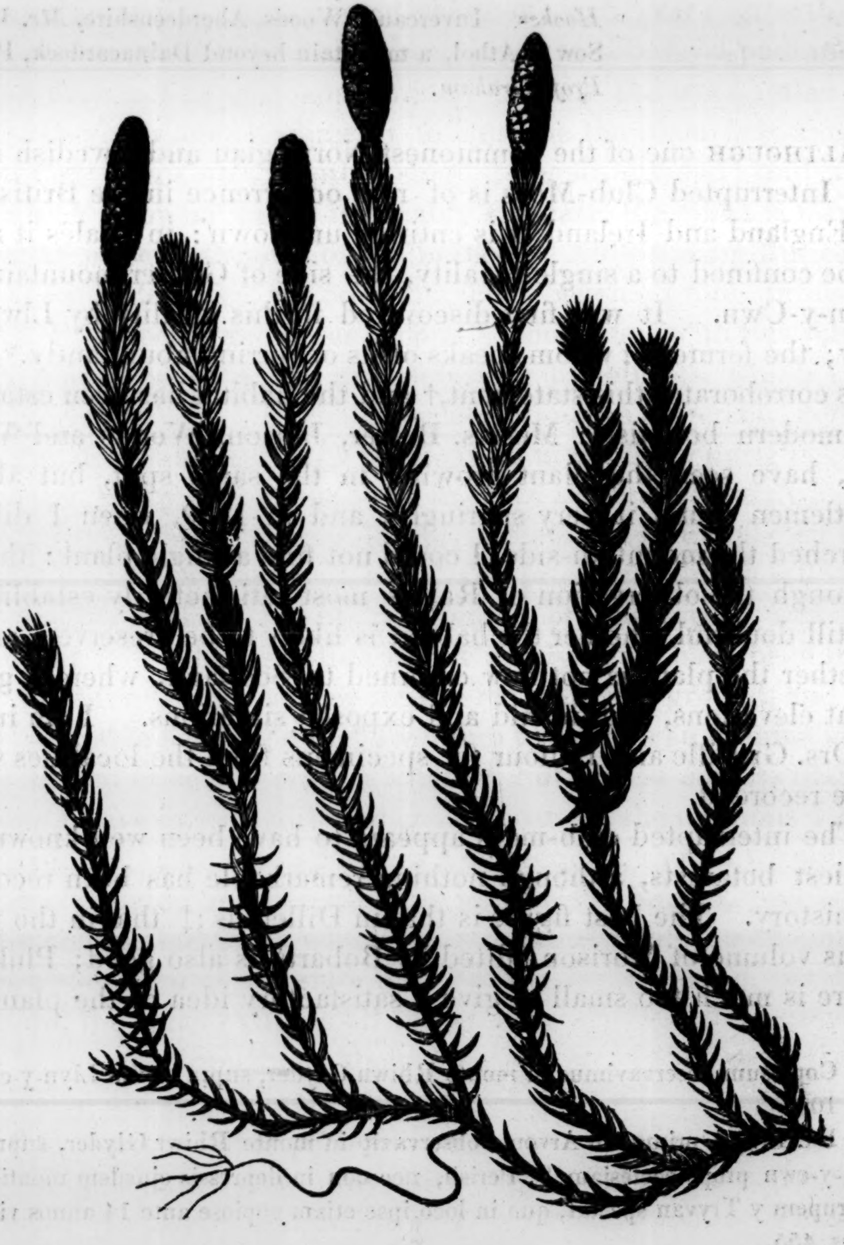
ART. V.—*A History of the British Lycopodia, and allied Genera.*

By EDWARD NEWMAN. (Continued from page 7).



INTERRUPTED CLUB-MOSS.

LYCOPODIUM ANNOTINUM of Authors.

LOCALITIES.

England.
Ireland. } Unknown.

Wales. Caernarvonshire, on the side of Glyder mountain facing Trevan, above Llyn-y-cwn. *Messrs. Janson, Woods, Borrer & Wilson.*

Scotland. Ben na Mac Dhui, Ben na bourd, Loch na gar, Mountains in Braemar, Glen Dole, Clova Mountains; *Drs. Balfour and Greville* and *Mr. Campbell.* Cairngorum range, *Sir W. J. Hooker.* Invercauld Woods, Aberdeenshire, *Mr. W. Brand.* Sow of Athol, a mountain beyond Dalnacardock, Perthshire, *Prof. Graham.*

ALTHOUGH one of the commonest Norwegian and Swedish species, the Interrupted Club-Moss is of rare occurrence in the British Isles. In England and Ireland it is entirely unknown: in Wales it appears to be confined to a single locality, the side of Glyder mountain above Llyn-y-Cwn. It was first discovered in this locality by Llwyd and Ray; the former of whom speaks of its occurring abundantly.* Dillenius corroborates this statement,† and the habitat has been established by modern botanists: Messrs. Borrer, Janson, Woods and W. Wilson, have seen the plant growing in the same spot, but all these gentlemen found it very sparingly; and in 1839, when I diligently searched the mountain-side, I could not find a single plant: therefore, although the observation of Ray is most satisfactorily established, it is still doubtful whether the habitat is likely to be preserved, and even whether the plant is not now confined to Scotland, where it grows at great elevations, and in wild and exposed situations. I am indebted to Drs. Greville and Balfour for specimens from the localities which I have recorded.

The interrupted club-moss appears to have been well known to our earliest botanists, although nothing remarkable has been recorded of its history. The best figure is that in Dillenius;‡ that in the posthumous volume of Morison edited by Bobart§ is also good; Plukenet's|| figure is much too small to give a satisfactory idea of the plant.

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* Copiosum observavimus in monte Rhiwn Glyder, supra lacum Llyn-y-cwn. Raii Syn. 108.

† Ed. Llwyd primus in Arvonia observavit in monte Rhiwr Glyder, supra lacum Llyn-y-cwn prope ecclesiam S. Perisii, nec non in depressis ejusdem montis Glyder qua rupem y Tryvan spectat, quo in loco ipse etiam copiose ante 14 annos vidi. Dillenius, 455.

‡ Dillenius, Historia Muscorum, 455, tab. 63, fig 9.

§ Morison (Bobart) Hist. Plant. iii. 264, sec. 15, tab. v. fig. 3.

|| Plukenet, Phytographia.

The roots are tough, wiry and tortuous, apparently not long, but very firmly fixed in the ground. The stem is creeping, very strong and tough, and has the surface deeply and irregularly striated: it sends out, at intervals varying from one to four inches, long branches in an erect position; these increase annually in length, the growth of each year being very decidedly marked by the altered length and direction of the leaves; so much so indeed as to give the branches a somewhat jointed appearance. From the marking of each year's growth the name of *annotinum* has probably been given to this Lycopodium; a name, however, not exactly appropriate, because the word rather implies of one year's age, leading us to imagine the plant was annual. These upright branches are either single or again divided; and when fertile, which is by no means invariably the case, the spike is usually on the sixth or seventh joint of the branch. After having fruited, or arrived at equivalent age, the erect branches become prone, throw out roots and emit erect branches as before. Connected with this subject Sir J. E. Smith has broached an interesting hypothesis, which I will give in his own words. "The flowering branches are erect, densely leafy, but little subdivided, each terminating in a solitary upright spike, whose scales, being deciduous, seem to leave the branch partly naked, but it afterwards bears proper leaves, except a few diminished ones just under where the spike had been, and produces, in the following season, another spike: hence the jointed or interrupted aspect of the branches."* This assertion would surely never have been made without what the learned author considered sufficient ground, and it is with considerable hesitation that I venture to express an opinion at variance with that of so observant a botanist, but I must confess that the specimens I have examined by no means bear out the opinions I have quoted; indeed, were the hypothesis a correct one, should we not find the spike occupying indifferently any joint of the branch, and not so generally confined to those which are numerically the same? Moreover, in a specimen now before me from the herbarium of Mr. S. P. Woodward, the spike exhibits all the symptoms of incipient decay.

The branches, throughout their length, are clothed with linear leaves, which are very acutely pointed and have minute lateral serratures: those on the older portions are somewhat more scattered and distant, an appearance caused by the elongation of the stem itself, the leaves being persistent, and enduring for very many years. Those on the lower portion of the erect branches are often somewhat reflexed, while on the more recent growth they are erect, more crowded, and somewhat imbricated. Smith says that the leaves are ranged in five rows; and an attentive examination of the plant leads one to agree with this remark, still the character is not noticeable, and can only be traced with difficulty.

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* English Flora, iv. 334.

The spike is oblong, terminal, and completely sessile; the long peduncle, which, in the common club-moss, separates the spike from the leafy part of the branch, is entirely wanting, a character amply sufficient to distinguish this species from the foregoing. The leaves or bracts in the spike are nearly round, yet have a pointed apex; their edges are membranous and jagged, they become reflexed when the seed is shed: in the axil of each is situated a large, conspicuous, reniform capsule, which, when ripe, opens transversely, allowing the escape of numerous minute, sulphur-coloured seeds.

(To be continued).

Art. VI.—*List of Rare Plants found in Devonshire, in the year 1840.* By N. Ward, Esq.

Wellclose Square, June 19, 1841.

Sir,

During the summer of 1840 my father and I made a botanical excursion into Devonshire, and with the kind assistance of Mrs. and the Misses Griffiths and the Rev. W. S. Hore, we succeeded in obtaining many valuable plants, a selection from which I hand you below.

Yours truly,

N. Ward.

To the Editor of 'The Phytologist.'

At or within three miles of Torquay.

Brassica oleracea.

Helianthemum polifolium. This species grows in profusion, and supplies the place of Hel. vulgare, which is not to be found here.

Lavatera arborea.

Trifolium suffocatum. Not growing on the sandy sea-shore, but about half a mile inland, in a peat soil, in company with Trifolium subterraneum.

Lotus hirsutus.

Vicia sylvatica.

Crithmum maritimum.

Bupleurum aristatum.

Trinia glaberrima.

Smyrnium Olusatrum.

Rubia peregrina.

Chrysocoma Linosyris.

Lithospermum purpuro-cæruleum.

Anchusa sempervirens.

Orobanche major.

Orobanche barbata. On the roots of ivy.
Melittis Melissophyllum.
Leonurus Cardiaca.
Beta maritima. It is not generally known that this plant is an excellent substitute for spinach.
Euphorbia Portlandica.

Near Holne Chase, and on the borders of the River Dart.

Hypericum elodes.
Campanula hederacea.
Anagallis tenella.
Scutellaria minor.
Myrica Gale.
Osmunda regalis. It is remarkable that this beautiful fern, which grows with extreme luxuriance on the banks of the Dart, is very rarely seen on the banks of the East or West Lyn.

At or within eight miles of Devonport.

Eryngium campestre.
Verbascum virgatum.
    Blattaria.
Pinguicula lusitanica.
Bartsia viscosa.
Sibthorpia europæa.
Habenaria bifolia.
Lastræa Oreopteris.
Asplenium lanceolatum.
Hymenophyllum Tunbridgense.
    Wilsoni.
Schistostega pennata.

In the vicinity of Barnstaple.

Aconitum Napellus.
Matthiola sinuata.
Viola Curtisii.
Euphorbia paralias.
Listera cordata. In considerable abundance on Codden Hill. One specimen from a number that were collected, had three leaves.

At or within six miles of Lynton (north Devon).

Meconopsis cambrica.
Euphorbia hiberna.
Allosorus crispus: in company with Polytrichum alpinum. Only one plant was discovered.
Asplenium septentrionale: growing in tolerable plenty in the crevices of a loose stone wall, facing the north, at an elevation of between 1000 and 1100 feet.
Bryum palustre.
    turbinatum.
Bartramia fontana.
    arcuata.
Hypnum dendroides.
Polytrichum urnigerum.
    alpinum.
Trichostomum polyphyllum.

At Ilfracombe.

Adiantum Capillus-Veneris, in four distinct localities.

At Clovelly.

Daltonia heteromalla.
Gymnostomum viridissimum.
    fasciculare.
    truncatulum.
Grimmia maritima.
Hookeria lucens.
Hypnum purum (in fruit).
    loreum.
    filicinum.
    denticulatum.
Trichostomum fasciculatum.
    lanuginosum.

ART. VII.—*Notice of 'A Flora of Shropshire.'* By W. A. LEIGHTON, B.A., F.B.S.E. London: Van Voorst. 1841.

(Concluded from page 16).

WE are sorry to find that in speaking of the published illustrations of the Botany of Shropshire, in the former part of this Notice, we so worded our remarks as to make it appear that the 'Botanist's Guide' by Turner and Dillwyn was the only work bearing that title in which such illustrations had appeared, thus excluding the 'New Botanist's Guide' by Mr. Watson. In Turner and Dillwyn's Guide are recorded the stations of 91 species of flowering plants; in Mr. Watson's New Botanist's Guide the number of species is raised to 157, the localities also being much more numerous, and chiefly derived from the previously unpublished notes of botanists of high repute.

Galium cruciatum, With., (Valantia Cruciata, *Linn.*) In 'Mag. Nat. Hist.' viii. 280, Mr. Leighton mentions two small, yellow, glandular bodies, situated on the back of the leaves of Galium cruciatum, immediately below their apex; and asks if these bodies are peculiar to the present species, and if any correspondent "can explain their probable use in the economy of the plant." We are not aware of any reply to these enquiries having appeared: the glands are obvious even in dried specimens of Galium cruciatum, but we have not observed them in any other species.

Anchusa officinalis, Linn.; "Oakley Park meadows, near Ludlow. Mr. H. Spare." We do not remember having before seen any other habitat for this species, than the Links at Hartley Pans, Northumberland, where it was discovered by the Rev. Thomas Butt: see his letter in 'Memoirs of Sir J. E. Smith,' i. 439.

The three reputed species of *Primula*, namely, *vulgaris*, *elatior* and *veris*, of 'English Flora,' i. 271, and other works, are, in the Shropshire Flora, restored to the rank assigned them by Linnæus, as varieties of his Primula veris; *α*, *officinalis*, being described as the cowslip, *β*, *elatior*, as the oxlip, and *γ*, *acaulis*, the primrose; *β* and *γ* being connected by a subvariety of *acaulis*, the P. vulgaris *β* of 'Eng. Fl.' l. c. At p. 9 of the 'Phytologist' will be found the description of a new subvariety, forming another link in the chain of evidence on this question.

Of *Hedera Helix*, Linn., Mr. Leighton observes, "the greatest elevation at which I recollect to have seen this plant growing in Shropshire, was near the summit of the Caradoc Hill, where it most magnificently overspread the perpendicular and exposed face of one of the rocks."

Gentiana Amarella, Linn. "A variety with perfectly double flowers has been observed by the Rev. T. Salwey! at Trefonen, Oswestry."

Cuscuta Epilinum, Weihe, appears to be the only species of this genus occurring in Shropshire. It was "discovered by J. E. Bowman, Esq.! July 29th, 1836, on flax, in a field near Croesmere, Ellesmere." See 'Mag. Nat. Hist.' N. S. ii. 343.

Shropshire can boast of possessing all the British Droseras. Under *Dros. rotundifolia* is recorded a variety, β, *ramosa*, which "occurs, not unfrequently, at Bomere Pool, of stouter and taller habit, with more numerous leaves, and the raceme forked or branched. On some specimens a simple raceme occurs, as well as the forked one."

Scheuchzeria palustris, Linn. Two Shropshire localities are given for this very rare plant, Bomere Pool and Shomere Moss, both near Shrewsbury. In 'Eng. Fl.' ii. 199, Lakeby Carr, near Boroughbridge, Yorkshire, is stated to be the only British station: in addition to this two others are given in Hook. 'Brit. Flora,' 174; so that we have now five recorded stations for a plant which, previously to 1807, was not known as a native of Britain.

Chrysosplenium alternifolium, Linn. "In all the Shropshire specimens which I have examined, of both species of Chrysosplenium, the calyx has been uniformly found to be 4-cleft, and the stamens 8; 4 of them alternating with, and 4 opposite to the sepals." This precisely accords with the result of our own observations on these plants.

Dianthus plumarius, Linn.; distinguished from Dia. Caryophyllus by the glaucous leaves being "finely serrulate at the margins" throughout their whole length, and not at the base only, as in the latter species; the flowers also have the outer edge of the petals deeply laciniated, while those of Caryophyllus are only sharply toothed. Mr. Leighton observes that "the only true stations known for Dia. Caryophyllus are the Kentish castles;" the old authors record a number of localities for it, but the plant growing in most of them is probably *plumarius*, as it certainly is at Ludlow in Shropshire and East Ham in Essex, while the plant of Rochester Castle in Kent is as certainly *Caryophyllus*.

Spergula vulgaris, Bonningh. Distinguished from Sperg. arvensis, with which it grows, by the seeds being "sharply keeled, and covered with white papillæ."

Localities are recorded for the rare *Anemone apennina* and *ranunculoides*: and the local *Ranunculus parviflorus* is said to be "not uncommon;" as indeed would appear from the long list of localities following the description.

Galeopsis versicolor, Curt. Mr. Leighton remarks, "I sowed seeds of this plant in my garden in 1834, where it has now completely naturalized itself; but I cannot perceive, on a comparison with the dried specimens from which the seeds were taken, any change in its characters, or any tendency to run into Gal. Tetrahit (of which it has been considered a variety), of which species I have never observed a single specimen in my garden." This was written in 1838.

Lathræa squamaria, Linn. The economy of this singular parasite, and its mode of attachment to the roots of the trees on which it grows, have been most successfully investigated by Mr. Bowman, who communicated the results of his researches to the Linnean Society, in a valuable paper read Nov. 3rd, 1839. This paper, with two exquisite plates of details, was published in the 'Linn. Transactions,' xvi. 399; and an abstract appeared in the 'Mag. Nat. Hist.' v. 45, illustrated by three excellent wood-cuts, copied from Mr. Bowman's original drawings. The 1st exhibits a perpendicular section (highly magnified) of one of the minute tubers situated at and near the extremities of the forked fibres of the root, showing the insertion of the tap-shaped base of the tuber into the alburnum of the root of the tree; the 2nd is a view of the longitudinal section of a leaf, through one of the parallel, perpendicular cavities or chambers excavated in the interior, each of these cells communicating with the external atmosphere by means of a very narrow opening "between the incurved lower edge of the leaf and the underside of the leaf-stalk;" the 3rd cut exhibits a magnified view of a transverse section of one of the subterranean leaves, wherein are shown all the cavities or cells divided in the middle, and lined with the minute, stalked papillæ or glands, which perform the various functions of the absorbing and perspiring cuticular pores of most other plants, these pores being absent from the external cuticle of the subterranean parts of Lathræa.

One of the stations for Lathræa is given on the authority of Mr. Dovaston; who says it is "naturalized to excess on hazel-roots at the Nursery, Westfelton." It will not perhaps be thought out of place here, if we introduce a quotation in reference to this *naturalization*, from a delightful article ycleped "Chit-chat," by Mr. Dovaston, in 'Mag. Nat. Hist.' v. 503.

"*Von Osdat.* So you have at last succeeded in getting the toothwort (Lathræa squamaria) to grow on the roots of the hazel?

"*Dovaston.* Not until I had utterly despaired. It was four years, and some five, before it came up visibly. I gathered the seeds in Erddig woods, where, you may remember, we saw it in profuse luxuriance. It will, however, turn pink or purple when very much exposed to the light, notwithstanding the remark of our learned friend, in his scientific and elaborate essay; for having cut away some of the hazel branches, to bring it more in view of the walk, the sunbeams in a few days turned it so very pinky and purple, that some ladies were very much struck with the beauty and delicacy of its colours, though the plant itself is rather of a repulsive and cadaverous aspect."

Of *Bidens tripartita,* Linn., "specimens not unfrequently occur, in which the leaves are all undivided; but attention to their being petiolate, and to the outer involucral bracteas being unequal, serrated, and many times longer than the flowers, will at once obviate any doubt which may by possibility arise, as to which species the plant ought to be referred."

The list of Salopian Orchideæ comprises 21 species; among which we are glad to recognise the names of 17 of our oldest friends, as well as of 4 rarer species with which our acquaintance commenced at a later period. The former include Orchis ustulata, rare; Habenaria viridis, chlorantha and bifolia, neither of them unfrequent; Ophrys apifera, not unfrequent, and muscifera, very rare; Neottia spiralis, not common; Listera ovata, frequent; Neottidium Nidus-avis, not common; Epipactis latifolia, not unfrequent, and palustris, not common. The four rarer species are Gymnadenia albida, Ophrys aranifera, Listera cordata, all very rare in Shropshire; and Cephalanthera ensifolia, rare.

Gymnadenia albida, Scop. Orchis albida, Sm., 'Eng. Fl.' iv. 18. Habenaria albida, Br., Hook. 'Brit. Fl.' 376.

"The structure of this plant is certainly that of *Gymnadenia* not *Habenaria.* I am far from being certain that this genus and *Aceras* ought to be retained separate from *Orchis. Gymn. conopsea* comes so very near to *Orc. pyramidalis* in habit and appearance, as often to be hardly distinguishable without examination, and the structure of the anther is scarcely sufficiently different to constitute a genus."—*Babington.*

Neottidium Nidus-avis, Schltd. Listera Nidus-avis, Hook. 'Fl. Scot.' 253; 'Eng. Fl.' iv. 39; 'Br. Fl.' 379. The non-parasitical nature of this plant, and its mode of propagation, have been determined by the Hon. and Rev. W. H. Herbert; the results of whose researches we here lay before our readers.

"The Hon. and Rev. W. H. Herbert has investigated the economy of this plant, which has been considered as parasitical on the roots of trees. He found several dead flower-stalks which had grown out of bundles of fleshy fibres, diverging every way, but the fibres were falling apart, and the plant appeared to have died as an annual after flowering. On stirring the ground further, at a short distance, he discovered a live bundle of similar fibres, with a very strong white shoot or eye, like the dormant shoot of a perennial herbaceous plant, which was evidently to produce a flowering-stem in the next summer. Pursuing his researches he soon discovered similar bundles of dif-

> ferent sizes, which were clearly immature, and not ready to sprout in the following spring. On examination of the smallest, he found that it grew from the end of a half-dead fibre;,and recurring to the dead plant which he had first taken up, he perceived that its several fibres, or at least many of them, though dead at the base, *were alive at the other end*, and beginning to bristle or protrude young fibres near the extremity. By further research, he clearly ascertained that the plant *dies after flowering*, but is capable of *reproducing a new plant* from the point of each of its fibres after they have fallen apart, the extreme point becoming the eye or shoot, which increases in size till its maturity, and the lateral bristles becoming the fibres by which the plant is to be nourished and afterwards propagated. The young roots continue thus to increase in bulk under ground till they come to the flowering age, when they push up vigorously, die and spawn again in the same extraordinary manner."—p. 434.

We regret that we have room for only one more extract, which is a graphic description from the pen of J. F. M. Dovaston, Esq., of a remarkable monœcious variety of the common yew, with pendulous branches, (*Taxus baccata*, var. *β. Dovastoniana*, Leighton), growing in that gentleman's grounds at Westfelton, near Shrewsbury, and figured in Loudon's 'Arboretum Britannicum,' iv. 2083, fig. 1990.

> "It is about sixty years since my father John Dovaston, a man without education, but of unwearied industry and acute ingenuity, had with his own hands sunk and constructed a pump; and the soil being light, it continually fell in; he secured it with wooden bars, but foreseeing their speedy decay, he planted near to it, a Yewtree, which he bought off a poor cobbler for sixpence, who had plucked it up from a hedge-bank near Sutton; rightly judging that the fibrous and matting tendency of the yew-roots would hold up the soil. They did so; and independent of its utility, the yew (as you have to your great admiration witnessed) grew into a tree of the most striking and distinguished beauty; spreading horizontally all around to a diameter of 63 feet, with a single spiral leader to a great height; each branch in every direction dangling in tressy verdure down to the very ground, pendulous and playful as the most graceful birch or willow, and visibly obedient to the feeblest breath of summer air. Its foliage, like that of the asparagus, is admirably adapted for retaining the dew-drops; and at sunrise it would seem that Titania and a bevy of her fairies had been revelling the night around it, and left their lamps in capricious frolick, so glitteringly coruscant is every branch with its millions of every-coloured scintillations, as it were all a-blaze. To descend, however, to prose:—this lovely tree has food for the mind of the philosopher, as well as for the eye of the poet; for, strange to tell, and what few unseeing believed, though a male, and smoking like furnace, or a very volcano, with farina to the blasts of February, it has one entire branch self-productive, and exuberantly profuse in Female berries, full, red, rich, and luscious; from which I have raised 17 plants, every one of which already markedly partakes largely of the parents' *pensility*. Of these seedlings several have been presented to the following friends. * * The remaining trees are still in my possession, and are intended to be distributed to Societies or persons who will undertake to plant them in situations where they are likely to be preserved. Berries will also, at the proper season, be given with pleasure to such persons who may be curious in these matters."—p. 497.

The plates, 19 in number, are a somewhat novel feature in a local

Flora; of their utility, however, there can be but one opinion. With the exception of Nos. 5 and 11 they are filled with magnified figures and sections of the fruit and its appendages of such closely-allied species as are best distinguished by a reference to those parts; including 9 species of Potamogeton, 9 of Rumex, 27 of the 34 species of Umbelliferæ found in Shropshire, all the British Carices, and 18 species belonging to other genera of Cyperaceæ. In plate 5 are shown the variations in the form of the leaves and mode of inflorescence of Chenopodium polyspermum, Linn., the erect, acute-leaved form of which, at the suggestion of his friend Mr. Davall, Sir J. E. Smith described and figured as a distinct species under the name of Chen. acutifolium, in 'Eng. Bot.' xxi. t. 1481: and plate 11 is entirely filled with details explanatory of the curious economy of Colchicum autumnale.

In concluding this brief and imperfect notice of the 'Flora of Shropshire,' we feel that we cannot too strongly recommend it to the notice of our readers. For although, as a local Flora, it professes to treat only of the plants of a single county, that county produces more than half the number of species of flowering plants indigenous to the kingdom. The descriptions are unusually full and carefully drawn up: and when we add that some of the less understood species have been illustrated by the critical remarks and observations of some of our most eminent botanists, as for instance, many of the Hieracia and Orchideæ by Mr. Babington, the oaks by Professors Don and Graham, and the Cerasi by Dr. Bromfield and Messrs. Borrer, Dovaston and Forster, and that throughout the work there is constant reference to the state of the science on the continent and to the works of modern continental botanists, we think we have good grounds for saying that the 'Flora of Shropshire' should be in the hands of every one who feels interested in the botanical productions of the British isles.

Art. VIII.—*Analytical Notice of No. 54 of the 'Supplement to the English Botany of Sir J. E. Smith and Mr. Sowerby.'* London: Longman & Co., Sherwood & Co., and the Messrs. Sowerby.

The recently published number of this valuable and important work contains interesting descriptions of Myriophyllum alterniflorum, *DC.* Bryum Ludwigii, *Schwægr.* and Bryum annotinum, *Hedw.*; and descriptions and figures of Herniaria ciliata, *Bab.*; Potamogeton prælongus, *Wulf.*; Orobanche barbata, *Poir.*; Atriplex deltoidea, *Bab.*; and Lecidea Salweii, *Borr.*

We insert the following concise analysis of their characters and distinguishing marks.

Myriophyllum alterniflorum, DC. Sterile flowers alternate, about 6, in a leafless spike; spike nodding when in bud, afterwards erect; fertile flowers in axillary whorls of about 3 flowers, at the base of the spike: *tab.* 2854.

Stagnant pools and ditches.

St. Leonard's Forest, Sussex. Whixall Moss; near Colemere; Berrington Pool; Twyford Vownog, near Westfelton: all in Shropshire. Small lake near Snowdon. Braid Hills, near Edinburgh. Isle of Wight. Guernsey.

Smaller and more elegant than *M. spicatum*.

Bryum Ludwigii, Schwægr. Stems ascending; leaves ovate, concave, obtuse, flaccid, entire, their nerve ceasing below the apex; capsule pendulous, sub-pyriform; lid conical, obtuse: *tab.* 2855.

Clova Mountains.

Remarkable for its lax, obtuse, pellucid foliage, which is glossy and scarcely twisted when dry.

Bryum annotinum, Hedw. Stem very short; leaves crowded, erect, lanceolate, nerved, subserrulate at the apex; capsule oblong-pyriform, pendulous; lid convex, apiculate: *tab.* 2856.

Moist sandy places, usually barren; frequent.

Winwick Stone Delph, near Warrington.

Closely resembling *B. nutans*, but with smaller, more crowded and less deeply coloured foliage; the barren shoots bearing club-shaped fingered gemmæ in the axils of the leaves. Differing also from *B. carneum* in the form of the capsule and greater length of the fruit-stalk.

Herniaria ciliata, Bab. Stems herbaceous, prostrate, clothed with very minute decurved hairs; leaves orbicular-ovate, ciliated; clusters of sessile flowers axillary upon the lateral branches and distinct: *tab.* 2857.

Gravelly soil; tops of walls and hedge-banks.

Lizard Point, Cornwall. Near Port de Fer, Guernsey.

Usually confounded with *H. glabra*, *t.* 206, but very distinct.

Potamogeton prælongus, Wulf. Leaves all submersed, elongate-oblong, amplexicaul, obtuse and hooded at the end, entire; stipules without wings; nut obliquely ovate, keeled on the back when dry; spike cylindrical, many-flowered; peduncle very long, cylindrical: *tab.* 2858.

Ditch adjoining the river Thames, at Caversham Bridge near Reading. River Waveney, between Scole and Beccles. Scotland, frequent. River Blackwater, Co. Kerry, Ireland.

Leaves membranous, with about 5 strong nerves extending quite from the base to the apex, with several (about 2) weaker intermediate nerves and numerous transverse reticulations, pale green. *Spike* about 2 inches long. *Peduncle* very long, often 1 foot or more, curved, solitary. *Nut* compressed, with 1 large central and 2 smaller keels upon the back when dry, but rounded when wet.

Orobanche barbata, Poir. Sepals with 1 prominent nerve and several faint ones, ovate, with a long subulate point, or bifid, as long as the bent tube of the corolla; lips of corolla obscurely denticulated and wavy, upper 2-lobed, lower with 3 nearly equal lobes, central one longest; stamens inserted near the bottom of the tube, glabrous except at the base within; style glabrous, minutely downy above: *tab.* 2859.

Parasitical upon *Hedera Helix*.

St. Ives, Cornwall. Berry Head, Torquay and Combe Martin, Devonshire. On Worle Hill by Weston-super-Mare, Somersetshire. Barmouth and Oystermouth Castle, near Swansea, in Wales. Lexlip Castle and Mucruss Abbey, Ireland. Isle of Wight. Guernsey.

Usually confounded with *O. minor*, *t.* 422, which, independently of all structural differences, is as constantly parasitical upon *Trifolium pratense* as this is upon *Hedera Helix*. *Stem* 6—18 inches high, glandular-pubescent, purple. *Corolla* cream-coloured with prominent purple nerves, ultimately reddish-brown, externally glandular; margins of upper lip deflexed, of the lower one incurved. *Stigma* slightly 2-lobed, its disk yellow.

Atriplex deltoidea, Bab. Stem erect, herbaceous, with ascending branches; leaves all hastato-triangular, unequally toothed, opposite; enlarged calyces ovate-triangular, toothed, tuberculated on the back, longer than the fruit, arranged in a compound, many-flowered panicle; seeds smooth and shining: *tab.* 2860.

Waste places; not uncommon.

Primrose Hill, near London. Leicestershire. Kent. Shropshire. Guernsey. Sark.

Distinguished from *A. patula* by not having its upper leaves entire, its enlarged calyx not triangularly rhomboid and entire, its spikes not interrupted and simple, nor its branches elongated, its fruit smooth and shining, not opaque and rough.

Lecidea Salweii, Borr. Thallus of small, white, depressed, bluntly-lobed, tumid, tartareous scales; patellulæ superficial, slightly raised, lurid-brown, margin paler, narrow, flexuous; substratum thick, pale: *tab.* 2861.

On the ground, in rocky situations.

Craig Breiddin, Montgomeryshire; near Drws y Nant-Isaf by the road from Bala to Dolgelly, and above Gelli-rhûdd near Barmouth; above Twll-dû: all in North Wales. Near Sennen, Cornwall. In the Valley of Rocks at Linton, North Devon. Priest-Leap Mountain near Dunkerron, Ireland.

Patches of irregular outline and considerable extent, composed of scales rarely a quarter of an inch over, closely attached to the substance on which it grows. *Patellulæ* about the size of poppy-seed, produced upon the scales, not in the interstices; slightly elevated, often clustered.

Nearly allied to *Lichen quadricolor*, *t.* 1185, and *Lichen glebulosus*, *t.* 1955, particularly the latter. Referable to the genus *Biatora* of Fries. Named after its discoverer, that accurate lichenologist, The Rev. Thomas Salwey, of Oswestry, Shropshire.

ART. IX.—*Varieties; Original and Select.*

1. *LYCOPODIUM clavatum.* I may observe that this plant makes a beautiful object when cultivated in a greenhouse, and suspended from the roof or side walls. I have seen it in such situations with branches from three to four feet long, flowering most abundantly, and having a peculiarly imposing appearance: in this state it is not readily recognized by persons familiar with it in its ordinary localities.—*D. Moore*;* *Dublin*, *May* 24, 1841.

2. *Plants in the neighbourhood of Falmouth, Cornwall.* This corner of England is by no means devoid of interest to a lover of Botany. I think thou wilt like to know what plants I have already seen. The first I was struck with was Cotyledon Umbilicus, which grows in the greatest profusion; not a hedge but is studded with it. The *hedges* here are banks of earth or loose rocky stones, and are overgrown with verdure, mostly affording on their top a convenient foot-path. In a lane, close by, grows Sibthorpia in abundance; also Anchusa sempervirens quite commonly. Thrift of course, on the coast; and some species of Cochlearia, one of which is said to be Danica, but I cannot see that the pouch is reticulated with veins. Cardamine hirsuta is very common. Senebiera didyma is a weed growing against the walls of houses. Smyrnium Olusatrum plentiful. Viola lactea, with its peculiar leaves, almost as common as canina. Myrica Gale grows in the same marsh as Menyanthes. On a promontory crowned with Pendennis Castle grow Mœnchia erecta, Silene maritima, Spergula subulata and Ranunculus parviflora. Melittis grandiflora grows in two or three localities near the sea. Oxalis corniculata is said to grow sparingly in the hedges. All the plants mentioned, except Oxalis, I have seen myself; no doubt there are others, equally rare, to be found as the year advances. The Melittis found here agrees with the description of grandiflora, except in the calyx, which seems more like that of Melissophyllum. Vaccinium Myrtillus is common.—*Daniel Peirson*; *Falmouth*, *5th month (May)* 28, 1841.

3. *Rare Plants in West Surrey.* Ribes rubrum and nigrum, the former in many places, the latter abundantly in one place, by the side of the Mole near Esher: perfectly wild and completely naturalized. Turritis glabra, abundant and fine by the road-side between Hampton and Sunbury. Diplotaxis tenuifolia, a rare plant in Surrey, is very abundant above Walton Bridge. Cerastium arvense, on banks by the side of the Thames below Walton Bridge.—*J. S. Mill*; *Kensington*, *June* 1, 1841.

4. *Isatis tinctoria* is now growing in prodigious luxuriance in the chalk-quarries close to the town [of Guildford]. It grows (in many instances) out of clefts in the precipitous chalk cliff, and makes almost a *bush* of flowers from the same root. Geranium lucidum I again found in my old locality, near St. Catherine's Hill.—*Id. June* 8, 1841.

5. *Aconitum Napellus.* This beautiful plant occurs abundantly in various localities in the immediate neighbourhood of Leominster in Herefordshire: its growth is luxuriant, and its habitat is invariably the bank of one of the numerous rivulets which so abound in that fluviatile district. It is introduced into the gardens in the town, and grows with health and vigour when removed from its native humid station. Sir W. J. Hooker, in 'Brit. Flora,' i. 264, mentions this as "a doubtful native," but I have seldom seen a plant which exhibits more manifest symptoms of being indigenous. *Edward Newman*; 45, *Wellclose Square*, *June* 21, 1841.

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* In a letter to E. Newman.

6. *Inula Helenium*. This noble plant grows in a field at Stoke, near Leominster, in great luxuriance, sometimes attaining the height of 7 feet. The exact site is at the foot of some unusually tall poplars; indeed so conspicuous are these poplars that they serve as a guide to the spot, even from a distance of two miles. I have also seen it near Knightsford Bridge, in a wood on the right hand, close adjoining the turnpike road between Worcester and Bromyard.—*Id.*

7. *Pelargonium tricolor*. In making a short cut over a stony hill (primitive sandstone, the general rock of this country) covered with low bushes, I noticed in the fissure of a rock, the elegant Pelargonium tricolor in blossom. This to me was like recognizing an old forgotten acquaintance, of a pleasant character; for the existence of this old but elegant and delicate inhabitant of English greenhouses, had quite passed from my mind; till (scarcely raised above the stone on which it grew) a large cluster of its pure white blossoms, shaded into blackish crimson, met my eye in this inhospitable region, and revived many associations in connection with the persons under whose care I had seen it cultivated.--*James Backhouse's Journal, part 7 : South Africa.*

8. *Spontaneous appearance of Plants*. Eaton mentions [the raspberry] by the name of Rubus Idæus among the native plants. It grows and spreads abundantly, so as quickly to overspread a large space of ground. I have never seen it in the primitive woods; but whenever a clearing is made the raspberry appears. * * The bushes are extremely numerous on every road-side and almost in every field, growing in the corner of the fences, springing up abundantly in ground recently cleared and "burnt over;" and invariably forming a great bush around every dead stump or neglected log. * Poplars are very rarely seen in the primitive forest: but if a clearing be made, and neglected for a few years, the ground will be covered with a new growth of trees, usually called "second growth timber," consisting almost wholly of poplars, provided the land be slightly disposed to wetness. The cause of this I cannot in anywise explain. It is not confined to the case I have mentioned: it has very often been observed that when forests are destroyed, they are succeeded by a spontaneous growth of plants of altogether different species from those which originally occupied the ground. How are they produced? From seed, certainly: but whence comes the seed? Has it lain in the ground for uncounted ages, waiting a favourable opportunity to spring up? I cannot tell; this is one of those mysterious things which I am not at all adequate to unfold; I can only notice the fact.—*Gosse's 'Canadian Naturalist.'*

9. *Typha latifolia*. Have you ever examined any of that large patch of bull-rushes (Typha latifolia) which grow in the bottom of this field? It is difficult to get at them, as it is a complete bog all around, but they are so curious that they repay the trouble of obtaining them. The thick cylindrical head appears like a fine but very closely set brush radiating from the axis or stalk, which it covers for about six inches. On picking out a lump of what we may call the bristles of this brush, we are surprised to see that we have a handful of the softest down, that which before was not larger than one's thumb, now, on being freed from the stalk, filling one's hand; and the hiatus made by the loss is filled up by the expansion of the remainder so completely as scarcely to be perceivable. In short the whole head is composed of this very expansive down; and I am told that poor persons sometimes collect quantities of it to make beds, which are said to be soft and elastic.—*Id.*

10. *Red and Green Snow*. In the 44th No. of Taylors' 'Annals and Magazine of Natural History,' is the translation of a paper from Weigmann's Archiv. (Heft. i. 1840), entitled "On Red and Green Snow; by the late Prof. Meyen:" from which we learn

that M. Ch. Martius, who twice accompanied the French expedition to Spitzbergen, is of opinion that the colouring matter of red snow, *Protococcus nivalis*, and of green snow, *Prot. viridis*, "are one and the same plant, only in different stages of development." Prof. Meyen, however, considers it to be still a question whether the colours of the snow are really produced by different states of the same species, but he has no doubt that the so-called Protococci belong, not to the vegetable but to the animal kingdom, being true Infusoria; that Protococcus viridis is identical with Ehrenberg's *Euglena viridis* and Prot. nivalis with his *Eug. sanguinea*, (the *Enchelis sanguinea* and *Pulvisculus* of authors); that these Enchelides "exhibit at times a perfectly motionless state, in which they appear spherical," and that in this state they have been described as Protococci; that "it is these spherical, reposing animalcules which often appear in almost incredible numbers, and, surrounded with a kind of slime, form more or less thick skins, which frequently cover the bottoms of shallow standing waters;" and it is in consequence of observing that these animalcules, after long remaining in this passive and inert state, occasionally resume their activity, that so many philosophers have spoken of a metamorphosis of Infusoria into plants, and vice versâ.—*Ed.*

ART. X.—*Proceedings of Societies.*

LINNEAN SOCIETY.

AFTER the recess we intend to give full reports of the botanical papers read at this Society.

BOTANICAL SOCIETY OF EDINBURGH.

The future meetings of this Society will be regularly reported: the omission in the present instance was not accidental, but unavoidable.

BOTANICAL SOCIETY OF LONDON.

June 4.—John Reynolds, Esq., Treasurer, in the Chair. Dr. Killikelly (of Indiana) presented a specimen of Tillandsia Usneoides from the banks of the Mississippi.

Dr. John Lhotsky read a paper "On the Periodical Decortication of the genus *Eucalyptus* in Australia." After describing the appearance of the bark hanging in strips from the trunks and branches of the Eucalypti, Dr. Lhotsky observed that in addition to this singular effect, the varying colour of the denuded trunks and branches, from pure white through all shades to deep red, presents an equally original and characteristic aspect. Little is yet known as to the period of decortication; and the questions to be determined by future observers are, 1st, Whether the decortication of the different species of Eucalypti takes place at any certain season or is dependent on other circumstances; and 2dly, Whether all the species decorticcte at the same period, or the different species at different times. The cause of a phenomenon apparent in so great a number of a genus scattered most widely over the Australian continent, is matter of importance for physical Geography, and for Botany especially. And Dr. Lhotsky thinks a clew towards its explanation may be obtained through that botanical axiom, that the concentric layers of wood and bark are the reverse of each other, the former increasing externally, the other internally. As exogenous plants (like the Eucalypti) increase by annual additions of new matter on their outsides, it is plausible to say, that as the growth of the Eucalypti, in almost all the species, is very rapid, the alburnum of these trees extends so rapidly that the liber first becomes considerably distended, then cracks, and finally separates from the trunk. The New Hollanders have largely taken advantage of this phenomenon. The huts or sheds temporarily occupied by them are made of the sheets of the bark of the Eucalypti. It is on such sheets that they repose, and protect themselves from the humidity of the soil. From such sheets also they make their most rude canoes, (with which, however, they only navigate the lakes); they bind them in an adequate manner, and fill up the crevices with soil and melted gum. The New Hollander possesses neither flint nor steel; and as he finds it difficult to produce fire, he carries with him on his aquatic excursions, a piece of a large ignited branch of an Eucalyptus, which, from its resinous nature, burns like a torch. In conclusion, Dr. L. observed,—"Taking all this, and what I have said in previous papers, together, the New Hollander may, with some degree of propriety, be called the 'Eucalyptus-man.'—*G. E. D.*